

Appl. No. : **09/185,876**
Filed : **November 3, 1998**

REMARKS

The foregoing amendments and the following comments are responsive to the objections and rejections set forth by the Examiner in the May 19, 2004 Office Action.

Claims 1-20, 22-52, 55, 57-67, and 69-71 are pending in this application. The Examiner rejected Claims 1-20, 22-52, 55, 57-67, and 69-71. In particular, the Examiner rejected Claims 1-20, 22-52, 55, 57-67, and 69-71 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,550,924 ("the Helf patent") in view of U.S. Patent No. 5,953,697 ("the Lin patent").

By this amendment, Applicant has amended Claims 1, 5, 9, 17, 34, 55, 57, 64, and 67. Reconsideration of the pending claims, as amended, is therefore respectfully requested.

REJECTION OF CLAIMS 1-20, 22-52, 55, 57-67, and 69-71 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 1-20, 22-52, 55, 57-67, and 69-71 under 35 U.S.C. § 103(a) as being unpatentable over Helf in view of Lin. In view of the following discussion, Applicant respectfully traverses this rejection.

Helf appears to teach enhancing speech by suppressing constant background noise. See column 1 lines 30-32. Helf appears to apportion the sampled input signal into digital frames and to filter the frames to remove noise. See column 3, line 53 through column 4, line 49, and Figure 1. Thus, Helf appears to distinguish between voice and noise so as to reduce the noise component of the signal.

Lin appears to teach estimating the gain of a linear predictive coding vocoder. The gain of the synthetic speech of the vocoder is estimated based on the envelope of the synthetic speech waveform. See column 3 lines 54-57 and the decoded envelope 26 in Figure 2.

In contrast, an embodiment of the invention emphasizes the speech frequencies of the input signal, and does not distinguish between speech and noise. The input signal is a voice signal that comprises words spoken by a human. The speech frequencies of the input signal are emphasized according to the envelope amplitude of the speech frequencies of the input signal. Further, in an embodiment of the invention,

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the emphasized signal is combined with at least a portion of the input signal to produce the enhanced signal representing the spoken words.

Claims 1, 5, 9, 17, 55, 64, and 67

Helf does not appear to disclose a speech expander where the speech expander amplifies the filtered signal based on the amplitude envelope of the filtered signal. In addition, Helf does not teach combining at least a portion of the output of the speech expander with at least a portion of the speech input signal to generate the enhanced speech signal.

Lin does not appear to disclose a system to enhance the intelligibility of words spoken by a human.

Because the references cited by the Examiner do not disclose, teach or suggest the use of a speech expander for words spoken by a human where the speech expander amplifies the filter output signal according to a function of the envelope amplitude of the filter output signal, and a combiner which combines at least a portion of the expanded signal with at least a portion of the voice signal comprising words spoken by a human to produce an enhanced signal, Applicant asserts that Claims 1, 5, 9, 17, 55, 64, and 67 are not obvious in view of Helf and Lin. Applicant therefore respectfully submits that Claims 1, 5, 9, 17, 55, 64, and 67 are patentably distinguished over the cited references and Applicant respectfully requests allowance of Claims 1, 5, 9, 17, 55, 64, and 67.

Claims 34 and 57

Helf does not appear to disclose a speech expander where the speech expander amplifies the filtered signal based on the amplitude envelope of the filtered signal.

Lin does not appear to disclose a system to enhance the intelligibility of words spoken by a human.

Because the references cited by the Examiner do not disclose, teach or suggest the use of a speech expander for words spoken by a human where the speech expander amplifies the filter output signal according to a function of the envelope amplitude of the filter output signal, Applicant asserts that Claims 34 and 57 are not obvious in view of Helf and Lin. Applicant therefore respectfully submits that Claims 34

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and 57 are patentably distinguished over the cited references and Applicant respectfully requests allowance of Claims 34 and 57.

Claims 2-4

Claims 2-4, which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claims 6-8

Claims 6-8, which depend from Claim 5, are believed to be patentable for the same reasons articulated above with respect to Claim 5, and because of the additional features recited therein.

Claims 10-16

Claims 10-16, which depend from Claim 9, are believed to be patentable for the same reasons articulated above with respect to Claim 9, and because of the additional features recited therein.

Claims 18-20, and 22-33

Claims 18-20, and 22-33, which depend from Claim 17, are believed to be patentable for the same reasons articulated above with respect to Claim 17, and because of the additional features recited therein.

Claims 35-52

Claims 35-52, which depend from Claim 34, are believed to be patentable for the same reasons articulated above with respect to Claim 34, and because of the additional features recited therein. Claims 41, 42, and 47 have been amended to correct an antecedent basis error. Claim 45 has been amended to correct the dependency.

Claims 58-63

Claims 58-63, which depend from Claim 57, are believed to be patentable for the same reasons articulated above with respect to Claim 57, and because of the additional features recited therein. Claim 62 has been amended to correct an antecedent basis error.

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Claims 65-66

Claims 65-66, which depend from Claim 64, are believed to be patentable for the same reasons articulated above with respect to Claim 64, and because of the additional features recited therein.

Claims 69-71

Claims 69-71, which depend from Claim 67, are believed to be patentable for the same reasons articulated above with respect to Claim 67, and because of the additional features recited therein.

REQUEST FOR TELEPHONE INTERVIEW

Pursuant to M.P.E.P. § 713.01, in order to expedite prosecution of this application, Applicant's undersigned agent of record hereby formally requests a telephone interview with the Examiner as soon as the Examiner has considered the effect of the arguments presented above. Applicant's agent can be reached at (949) 721-2988 or at the number listed below.

CONCLUSION

In view of the forgoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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